

APPENDIX D

SYMBOLS

b	Thickness of Soil Layer
C	Hazen and Williams Friction Factor
D	Diameter
e	Unit Gravitational Vector
E_h	Redox Potential
f	Darcy-Weisbach Friction Factor
g	Gravitational Acceleration
h_a	Absolute Pressure on the Surface of the Pumped Liquid
h_c	Capillary Head
$h_c(S)$	Capillary Head/Saturation Relationship
h_{cae}	Air-Entry Capillary Head
h_f	Friction Loss
h_n	Non-Wetting Capillary Head
H_o	Apparent LNAPL Thickness
h_p	Water-Equivalent Pressure Head
h_s	Static Height of Liquid Above/Below Pump Intake
h_{vp}	Absolute Vapor Pressure of Liquid
h_w	Wetting Capillary Head
K	Hydraulic Conductivity
k	Intrinsic Permeability
k_a	Air Permeability
k_r	Relative Permeability
K_{sw}	Saturated Hydraulic Conductivity of Water
L	Length
M	Mass
M_{soil}	Mass of Soil
M_w	Mass of Water
n	Porosity
n_a	Air Filled Soil Porosity
P_a	Air-Entry Pressure
P_{atm}	Atmospheric Pressure
P_c	Capillary Pressure
P_e	Air Emergence Pressure
P_{infl}	Inflection Pressure
P_n	Non-Wetting Phase Pressure

SYMBOLS (Continued)

P_{sub}	Subatmospheric Pressure
P_w	Wetting Phase Pressure
Q	Volumetric Flow Rate
q_p	Volumetric Flux of Fluid Phase P
Q_v^*	Volumetric Flow Rate at Atmospheric Pressure
Q_w	Water Flow Rate
r	Radius
$Rel. T_o/V_{of}$	Normalized Oil Mobility Factor
S_a	Air Saturation
S_o	Organic Liquid Saturation
S_{or}	Residual Organic Liquid Saturation
S_w	Water Saturation
S_y	Specific Yield
t	Time
T	Transmissivity
t_{xc}	Time Required for One Pore Volume Exchange
v	Velocity
V_o	True LNAPL Thickness
V_{pores}	Volume of Pores
V_t	Total Volume of Soil
V_w	Volume of Water
w	Moisture Content
α	Wetting Angle
γ_p	Source-Sink Term of Mass Transfer
η	Dynamic Viscosity
η_r	Relative Viscosity
θ	Moisture Content
ρ	Density
ρ_b	Bulk Density
ρ_r	Specific Gravity
ρ_w	Density of Water
σ_{ao}	Air-Oil Interfacial Tension
σ_{aw}	Air-Water Interfacial Tension
σ_c	Interfacial Tension
σ_{ow}	Oil-Water Interfacial Tension